OC3140
HW/Lab 5 Sampling Distribution

1. A manufacturer of car batteries guarantees that his batteries will last, on the average, 3 years with a standard deviation of 1 year. If five of these batteries have lifetimes of 1.9, 2.4, 3.0, 3.5 and 4.2 years, is the manufacturer still convinced that his batteries have a standard deviation of 1 year? (using 5 %)

2. A manufacturer of light bulbs claims that his bulbs will burn on the average 500 hours. To maintain this average, he tests 25 bulbs each month. If the computed t-value falls between $-t_{0.05}$ and $t_{0.05}$, he is satisfied with his claim. What conclusion should he draw from a sample that has a mean ($\bar{x} = 518$ hours) and a standard deviation $s = 40$ hours?

3. For the F distribution find,

   (a) $f_{0.05}$ with $n_1 = 7$ and $n_2 = 15$;
   (b) $f_{0.05}$ with $n_1 = 15$ and $n_2 = 7$;
   (c) $f_{0.05}$ with $n_1 = 24$ and $n_2 = 19$.